Chapter 4

Changes in maternal and paternal parenting: are they related to improvements in preschool children's behaviors after parent training in routine clinical care?

Lianne van der Veen-Mulders[1], M.A.
Pieter J. Hoekstra[1], M.D., Ph.D.
Maaike H. Nauta[2], Ph.D.
Barbara J. van den Hoofdakker[1, 2], Ph.D.

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1 University of Groningen, University Medical Center Groningen, Department of Child and Adolescent Psychiatry, Groningen, The Netherlands
2 University of Groningen, Department of Clinical Psychology and Experimental Psychopathology, Groningen, The Netherlands

Abstract

Objective: To investigate whether changes in parenting after behavioral parent training are associated with improvements in children's disruptive behaviors in routine clinical care.

Methods: Parents of 63 preschool children with disruptive behaviors, aged between 2.7 and 5.9 years, participated in behavioral parent training. We evaluated changes in maternal and paternal self-reports of parenting behaviors and parenting sense of competence with a one group pretest-posttest design. Moreover, we investigated whether there was an association between changes in parenting parameters and parents' ratings of child disruptive behaviors on the Eyberg Child Behavior Inventory. We also compared parenting parameters in the clinical sample before and after behavioral parent training with a nonclinical sample ($n = 121$).

Results: Mothers' self-reports of parenting behaviors and parenting sense of competence significantly changed over time after behavioral parent training ($d = 0.92$ and $d = 0.58$, respectively). Less over-reactivity in mothers was associated with less disruptive behaviors in children ($R^2 = .19$, $p < .001$). After parent training, maternal ratings of their parenting did not differ anymore from maternal ratings in the nonclinical sample. While fathers only reported significant changes in parenting sense of competence ($d = 0.24$), a decrease of paternal over-reactivity was related to less disruptive behaviors in children ($R^2 = .12$, $p < .001$).

Conclusions: Parent training under routine care conditions improves maternal parenting skills and parenting sense of competence in both mothers and fathers. Positive changes in parenting, particularly less over-reactive parental behaviors, are related to a decrease of disruptive child behaviors.

Introduction

Behavioral parent training aims to improve parenting to enhance positive behaviors in children. A number of studies have indeed indicated that parenting skills and parenting sense of competence improved after behavioral parenting training (Charach et al., 2013; Rimestad, Lambek, Zacher Christiansen, & Hougaard, 2016). We previously reported (Van der Veen-Mulders, Hoekstra, Nauta, & Van den Hoofdakker, 2018) that behavioral parent training under routine care conditions decreases disruptive behaviors in preschool children. The largest improvements in child behavior were seen when mothers considered themselves as inadequate in disciplining before parent training. However, we do not yet know if the improvements in child behavior were directly associated with changes in parenting.

There is some support that improvements in parental disciplining mediate improvements of child conduct problems after parent training (Forehand, Lafko, Parent, & Burt, 2014). Another study, among families of 2-year-olds, found that improvements in mothers' reports of self-efficacy were significantly associated with improvements in child behavior after behavioral parent training, but no such associations were found among fathers (Gross, Fogg, & Tucker, 1995). Furthermore, a study on a combined parent and child training for young children showed the most favorable responses when mothers exhibited poorer parenting practices before treatment and yet improved during treatment (Beauchaine, Webster-Stratton, & Reid, 2005). In contrast, another study in preschool children with conduct problems found that improvement of positive parenting skills, but not reduction of harsh and negative parenting, mediated the improvement in children's problem behavior (Hess, Teti, & Hussey-Gardner, 2004). The main aim of the present study was to examine whether changes in discipline practices and parenting sense of competence of mothers' and fathers' of referred preschool children after behavioral parent training, as provided in routine clinical practice, would be associated with changes in parent-rated child behavior problems. As secondary aim, we investigated if parents reported less adequate parenting practices and lower parenting self-esteem before treatment than parents of preschool children from the general population. Consistent with previous studies (Lorber, Xu, Slep, Bulling, & O'Leary, 2014; Wittkowski, Dowling, & Smith, 2016) we expected parents in the nonclinical sample to rate more adequate discipline practices and higher levels of parenting sense of competence. Furthermore, we explored if fathers and mothers differed on self-reported parenting parameters before treatment. Concerning differences on parenting between fathers and mothers, one could hypothesize that mothers of young children with disruptive

behaviors show lower levels of sense of competence on parenting and less adequate parenting behaviors, assuming they spend most of the time with their troublesome child. Therefore, we expected no differences in the nonclinical sample, but we did expect divergence in the clinical sample.

Method

Participants

The clinical sample consisted of 63 preschool children (aged 2.7-5.9 years) with disruptive behavior problems and their parents, participating in behavioral parent training as part of routine care. The children in this sample had at least six attention-deficit/hyperactivity disorder (ADHD) symptoms in total or at least four symptoms in one symptom domain (attention-deficit or hyperactivity/impulsivity) plus behavior problems at home (i.e., score on the Intensity scale of the Eyberg Child Behavior Inventory (ECBI-I; (Eyberg & Pincus, 1999) ≥ 132 and/or at least two oppositional defiant symptoms, as assessed with a semi–structured interview with the parents (i.e., the Dutch version of the Parent Interview for Child Symptoms PICS-4; (Schachar, Ickowicz, & Sugarman, 2000). Participating parents gave written informed consent to use the routine care assessments for research purposes. The study had been approved by the Medical Ethical Committee of the University Medical Center Groningen. For more details of the study procedures, see (Van der Veen-Mulders et al., 2018). Characteristics of the participating families are presented in Table 1. Although one of the secondary caretakers was a grandmother, we report on secondary caretakers as 'fathers'.

The nonclinical sample consisted of 121 children (66 boys [55.5%] and 55 girls [45.5%] aged between 2.6 and 6 years [M = 4.12, SD = 1.00]), recruited from schools and child care centers in the Netherlands. On the ECBI-I, both mothers ($t(180) = -16.4$, $p < .001$) and fathers ($t(122) = -13.3$, $p < .001$) of these children stated significantly fewer disruptive behavior problems than parents in the clinical sample. The mean mother's ECBI-I of the nonclinical sample was 98.8 (SD = 22.2, range = 36 - 158) and the mean father's score was 90.6 (SD = 22.2, range = 46 - 146). Compared to parents in the clinical sample, mothers in the nonclinical sample also rated significantly fewer child behaviors on the ECBI Problem scale (ECBI-P) as troublesome, $t(177) = -18.2$, $p < .001$, as did fathers, $t(114) = -13.6$, $p < .001$. The mean mother's ECBI-P of the nonclinical sample was 3.3 (SD = 5.08, range = 0 - 30), and the mean father's score was 2.8 (SD = 4.73, range = 0 - 22).

Table 1 **Baseline characteristics of children and their parents in the clinical sample** (*n* = 63)

Child characteristics	
Male sex, *n* (%)	49 (78)
Age in years, mean (SD), range	4.6, (0.91), 2.7 - 5.9
Total IQ, mean (SD), range	101, (14.39), 72 - 131
Number of ADHD symptoms	10.4, (3.69), 4 -18
Number of ODD symptoms	2.3, (1.86), 0 - 8
Family characteristics	
Highest parental education level, *n* (%)	
Low	25 (40)
Middle	28 (44)
High	10 (16)
Single mother family, *n* (%)	16 (25)
Two parent family, *n* (%)	47 (75)
Maternal characteristics	
Age in years, mean (SD), range	32.9, (4.37), 24 - 41
Biological mothers, *n* (%)	62 (98)
Foster mother, *n* (%)	1 (2)
Secondary caretaker's characteristics	
Age in years, mean (SD), range	35.8, (5.56), 24 - 51
Biological fathers, *n* (%)	41 (87)
Stepfather, *n* (%)	5 (11)
Foster father, *n* (%)	1 (2)

Note. ADHD = Attention-deficit / hyperactivity disorder, ODD = Oppositional defiant disorder, ECBI – I = Intensity scale of the Eyberg Child behavior Inventory; ECBI – P = Problem scale of the Eyberg Child Inventory.

As children in the nonclinical sample were significantly younger than children in the clinical sample, $t(182) = -3.21$, $p = .002$, and consisted of significantly more girls, $\chi^2(1, n = 184) = 9.54$, $p = .002$, we matched a subsample of $n = 63$ on age and sex out of the total nonclinical sample with the clinical sample. We conducted all main analyses with the total nonclinical sample ($n = 121$) and performed sensitivity analyses with the matched sample ($n = 63$). Also in this matched sample fathers and mothers reported significantly lower ECBI-I and ECBI-P scores than did parents in the clinical sample.

Treatment

The treatment protocol was based on two established behavioral treatments (Barkley, 1987; Forehand & McMahon, 1981) and the training was provided in group or individual format during twelve sessions: two-hour group sessions led by two psychologists, or one-hour individual sessions led by one psychologist, trained and experienced in delivering behavioural parent training to parents of children with behaviour problems. Therapists were weekly supervised and filled in a treatment integrity checklist after each session. Parents could express preference for the individual or group format, this resulted in 55 parents (87%) who preferred and started the individual format.

The primary focus of the training was to improve positive child behaviors and to reduce disruptive behaviors. In order to enable parents to modify their child's behaviors, an important secondary focus was to improve parental disciplining practices and to increase parenting sense of competence. Treatment was tailored for each child, based on target behavior problems selected by the parents in the first session, and parents learned how to observe behavior in Antecedent-Behavior-Consequence schedules, how to improve the parent-child interaction by playing with the child, how to adjust the antecedents (e.g., setting rules, giving adequate commands, structuring the environment, anticipating new situations) and consequences (e.g. praising and using rewards, ignoring, time-out and punishment) for target behaviors, and also included maintenance training. For more details on the treatment see (Van der Veen-Mulders et al., 2018).

Parents of 70% ($n = 44$) of the participating children completed all twelve behavioral parent training sessions, while 30% ($n = 19$) stopped the treatment before the last session (range 1-11 sessions). The mean number of sessions for the whole group was 9.9 (SD = 3.53), with a significant difference between both caregivers, $t(49) = 2.26$, $p = .028$, if they both participated in behavioral parent training ($n = 47$), i.e., mothers received on average 0.74 more sessions than fathers.

Measures

Parenting outcome measures were parental total and subscale scores on the Parenting Scale (PS; (Arnold, O'leary, Wolff, & Acker, 1993)) and the Parenting Sense of Competence Scale (PSOC; (Johnston & Mash, 1989)). The PS measures dysfunctional parenting discipline strategies and consists of a total score and two subscale scores; Over-reactivity (i.e., authoritarian, emotional and harsh parenting behaviors and Laxness (i.e., inconsistent and permissive parenting behaviors). A low PS score reveals more effective parenting behaviors. The PSOC measures parental sense of competence on two dimensions: Satisfaction, examining parents' anxiety, motivation and frustration regarding the parenting role of the troublesome child, and Efficacy, assessing parents' competence and problem-solving abilities in their parenting role. A high PSOC score indicates a stronger sense of competence.

Parental ratings on the ECBI were used to assess children's behavior problems. The ECBI is a 36-item inventory, rating both the intensity of problem behaviors (ECBI-I) and if the item-behavior is a problem or not for the parents (ECBI-P). Parents in the nonclinical sample filled in the questionnaires at home and parents in the clinical sample at home or at the clinic. Parents were instructed to fill in the measurements separately and independently.

Statistical analysis

If there were guidelines available on how to deal with missing items, we followed these guidelines. In case of no such rules and less than 20% missing values for a scale, these values were replaced with the mean of other items of the scale. In total, < 0.1% scores, randomly distributed among scales, assessment timepoints, and participants, were missing.

To investigate differences between and within the clinical and nonclinical sample in mothers' and fathers' scores on the PS and PSOC we used independent t-tests. The statistical significance level was set at $p < .05$. To correct for multiple testing, we adjusted significant p values with the Holm-Bonferroni procedure (Gaetano, 2013). We analyzed changes in the PS and PSOC ratings in the clinical sample before (T1) and after (T2) behavioral parent training, for mothers and fathers separately, with paired t-tests. Holm-Bonferroni corrections were applied per rater (mothers or fathers), for all (subscale) measures. To evaluate the clinical significance of the changes in parenting parameters between T1 and T2, we calculated effect sizes (Cohen's d), by dividing the difference between two means (T1 and T2) with the pooled standard deviation.

In the clinical sample, changes in ECBI-I and ECBI-P ratings before (T1) and after (T2) behavioral parent training were analyzed with paired t-tests. To investigate whether changes

in parental discipline practices and parenting sense of competence were associated with improvements of children's disruptive behavior problems after behavioral parent training we used multiple regression analyses, with ECBI-I and ECBI-P T2 scores, respectively, as dependent variables and total PS and PSOC pre- and posttreatment difference scores as predictors, while controlling for ECBI-I or ECBI-P baseline ratings. Predictors that were not significant were removed from the analyses.

Results

Differences in parenting between parents of referred and non-referred children

Table 2 presents maternal and paternal ratings of parenting sense of competence and dysfunctional parenting strategies in the clinical and nonclinical sample. The total PS scores of parents of children in the clinical sample at baseline were significantly lower than ratings of parents in the nonclinical sample, $t(302) = -6.44$, $p < .001$. Also, parents' ratings on the PSOC in the clinical sample were significantly higher than parent's ratings in the nonclinical sample, $t(279) = 8.25$, $p < .001$, meaning that they experienced less sense of confidence on parenting. Regarding the subscale scores of both PS and PSOC, ratings of parents in the two samples significantly differed as well, with parents in the clinical sample reporting higher levels of lax and overreactive parenting and lower levels of satisfaction and efficacy on parenting. Focusing on ratings from mothers and fathers separately, these differences remained both on total and subscale scores, except for the PS Laxness subscale; fathers in the clinical sample did not significantly differ from fathers in the nonclinical sample in ratings of permissive and inconsistent parenting.

Both in the clinical and the nonclinical sample, fathers and mothers did not significantly differ in mean total baseline scores on the PS and the PSOC. Regarding the subscale scores, only a significant difference between mothers and fathers was found in the clinical sample on the PS subscale Over-reactivity; mothers reported significantly higher levels of emotional and harsh discipline strategies than did fathers, $t(109) = 2.48$, $p < .015$.

Changes in parents' discipline practices and parenting sense of competence

Table 3 presents maternal and paternal ratings of parenting sense of competence and dysfunctional parenting discipline strategies (PS) before (T1) and after (T2) behavioral parent training. Paired *t* tests on ratings from both parents separately revealed that significant effects of time were present for the maternal ratings on both PS, $t(62) = 7.66$, $p < .001$ and

Table 2 **Mothers' and father's ratings on parenting sense of competence and dysfunctional parenting strategies in the clinical and nonclinical samples**

	Nonclinical sample				Clinical sample before treatment				
Variable	*n*	*Mean*	*SD*	*range*	*n*	*Mean*	*SD*	*range*	*t*
Mothers									
Parenting sense of competence (PSOC)									
Total score	107	76.9	8.26	45-92	61	66.3	10.7	38 - 89	7.16***
Efficacy	107	31.6	4.23	17-41	61	26.8	5.41	13 - 38	6.36***
Satisfaction	107	45.3	5.02	28-54	61	39.5	6.43	21 - 52	6.50***
Parental discipline (PS)									
Total score	117	77.0	15.1	37-123	63	90.3	16.7	57-127	-5.46***
Laxness	116	22.8	6.41	11-40	63	26.0	8.97	11-55	-2.49*
Over-reactivity	116	24.1	6.85	10-45	63	30.8	7.64	16-53	-5.96***
Fathers									
Parenting sense of competence (PSOC)									
Total score	68	77.1	9.06	52-95	45	69.4	9.26	45-88	4.38***
Efficacy	68	31.4	5.07	11-42	45	27.9	5.03	17-40	3.65***
Satisfaction	68	45.7	5.74	25-54	45	41.5	5.98	26-52	3.70***
Parental discipline (PS)									
Total score	76	77.3	16.2	43-117	48	87.4	14.4	61-139	-3.53**
Laxness	76	23.9	6.47	13-45	48	26.1	7.97	13-48	-1.62
Over-reactivity	76	22.9	6.43	13-43	48	27.3	7.20	10-47	-3.52**

Note. PS = Parenting Scale; PSOC = Parenting Sense of Competence Scale.
t test values, Holm–Bonferroni adjusted *p* values * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3 **Mothers' and father's ratings on parenting sense of competence and dysfunctional parenting strategies before (T1) and after (T2) behavioral parent training**

	Before treatment (T1)				After treatment (T2)					
Variable	*n*	*Mean*	*SD*	*range*	*n*	*Mean*	*SD*	*range*	*t*	Cohen's *d*
Mothers										
Parenting sense of competence (PSOC)										
Total score	61	66.3	10.7	38 - 89	62	72.0	8.88	45 - 92	-5.71***	0.58
Efficacy	61	26.8	5.41	13 - 38	62	29.5	4.61	15 - 39	-4.45***	0.54
Satisfaction	61	39.5	6.43	21- 52	62	42.6	5.38	27 - 53	-5.58***	0.52
Parental discipline (PS)										
Total score	63	90.3	16.7	57-127	63	75.8	14.6	44 - 114	7.66***	0.92
Laxness	63	26.0	8.97	11- 55	63	21.8	6.87	11 - 44	4.76***	0.53
Over-reactivity	63	30.8	7.64	16 - 53	63	24.8	6.99	11 - 43	6.72***	0.82
Fathers										
Parenting sense of competence (PSOC)										
Total score	45	69.4	9.26	45 - 88	44	72.4	9.71	54 - 94	-2.10*	0.24
Efficacy	45	27.9	5.03	17 - 40	44	29.2	5.51	19 - 41	-1.67	0.25
Satisfaction	45	41.5	5.98	26 - 52	44	43.2	5.49	28 - 54	-1.53	0.30
Parental discipline (PS)										
Total score	48	87.4	14.4	61 - 139	44	84.3	16.9	55 - 121	1.19	0.20
Laxness	48	26.1	7.97	13 - 48	44	25.3	8.24	11 - 47	.63	0.10
Over-reactivity	48	27.3	7.20	10 - 47	44	25.7	7.25	13 - 43	1.23	0.22

Note. PS = Parenting Scale; PSOC = Parenting Sense of Competence Scale.
t test values, Holm–Bonferroni adjusted p values * $p < .05$. ** $p < .01$. *** $p < .001$.

PSOC total scores $t(60) = -5.71$, $p < .001$, and on all subscale scores, but fathers' ratings only changed significantly on the total PSOC score between T1 and T2, $t(40) = -2.10$, $p < .042$.

Independent *t* tests indicated that maternal ratings on the total PS after behavioral parent training did not differ anymore from mothers' ratings in the nonclinical sample, $t(178) = .493$, $p = .623$, nor did ratings on the PS subscales. Significant differences between maternal PSOC ratings after behavioral parent training in the clinical sample and mothers' ratings in the nonclinical sample remained, both on the total score, $t(167) = 3.57$, $p < .001$, and on the PSOC subscales. After treatment, fathers in the clinical sample still differed from fathers in the nonclinical sample on all scales, except the PS subscale Laxness. As mentioned before, fathers in the clinical sample did also not differ in lax parenting discipline practices from fathers in the nonclinical sample before treatment.

After behavioral parent training, mothers in the clinical sample did not differ anymore from fathers in their ratings on the PS Over-reactivity subscale. But now, mothers rated significantly more adequate discipline practices than did fathers on the total score of the PS, $t(105) = 2.78$, $p = .007$ and on the Laxness subscale, $t(105) = 2.36$, $p = .007$ (see T2 scores in Table 3). Again, no differences were found between mothers and fathers after treatment regarding parenting sense of competence (see T2 scores in Table 3).

Sensitivity analyses yielded similar results, except for over-reactivity in fathers: fathers in the clinical sample did not differ in overreactivity after parent training compared to fathers in the nonclinical sample.

Parental changes in discipline practices and parenting sense of competence in relation to improvements children's in children's disruptive behavior problems after behavioral parent training

Paired *t* tests indicated that mean mothers' ratings on the ECBI-I ($M = 157.5$, $SD = 24.6$, range = 89 – 216) significantly improved from T1 to T2 ($M = 138.9$, $SD = 31.5$, range = 63 – 207), $t(61) = 5.57$, $p < .001$, $d = .66$, and also ECBI-P ratings improved significantly over time, $t(61) = 6.49$, $p < .001$, $d = .91$, from T1 ($M = 19.2$, $SD = 6.36$, range = 4 – 35) to T2 ($M = 12.7$, $SD = 7.90$, range = 0 – 34). Fathers' ratings on the ECBI-I significantly decreased as well, $t(44) = 5.32$, $p < .001$, $d = .68$, from T1 ($M = 146.5$, $SD = 24.1$, range = 94 – 203) to T2 ($M = 127.9$, $SD = 30.5$, range = 62 – 212) and so did fathers' ECBI-P ratings, $t(43) = 7.71$, $p < .001$, $d = .68$, from before ($M = 17.3$, $SD = 6.73$, range = 0 – 31) to after behavioral parent training ($M = 11.9$, $SD = 8.95$, range = 0 – 36).

Mothers' ECBI-I ratings before treatment statistically predicted ECBI-I ratings after behavioral parent training, $R^2 = .36$, $F(1,60) = 33.9$, $p < .001$, and mothers' ECBI-P ratings at T1 predicted their ratings at T2, $R^2 = .18$, $F(1,60) = 13.5$, $p = .001$. Improvements in overall maternal discipline practices and sense of competence on parenting added significantly to this prediction, both on ECBI-I, $R^2 = .51$, $\Delta R^2 = .15$, $F(3,56) = 19.5$, $p < .001$ and ECBI-P, $R^2 = .37$, $\Delta R^2 = .19$, $F(3,56) = 11.2$, $p < .001$. Focusing on the subscales of the PS and the PSOC, analyses revealed that only the change in maternal overreactive parenting added significantly to the prediction of the outcome variable, both on ECBI-I, $R^2 = .55$, $\Delta R^2 = .19$, $F(2,59) = 36.10$, $p < .001$ and ECBI-P, $R^2 = .37$, $\Delta R^2 = .19$, $F(2,59) = 17.29$, $p < .001$.

Fathers' ECBI-I ratings before treatment statistically predicted ECBI-I ratings after behavioral parent training, $R^2 = .45$, $F(1,43) = 35.6$, $p < .001$, and fathers' ECBI-P ratings at T1 predicted their ratings at T2, $R^2 = .31$, $F(1,42) = 18.8$, $p < .001$. Improvements in overall paternal parenting strategies added significantly to this prediction, both on ECBI-I, $R^2 = .53$, $\Delta R^2 = .08$, $F(2,40) = 22.8$, $p < .001$ and ECBI-P, $R^2 = .39$, $\Delta R^2 = .08$, $F(2,39) = 12.2$, $p < .001$. Changes in sense of competence in fathers had no significant additional predictive value. Again, focusing on the subscales, only the change in paternal over-reactive parenting added significantly to the prediction of the outcome variable on the ECBI-I, $R^2 = .57$, $\Delta R^2 = .12$, $F(2,40) = 26.4$, $p < .001$, but not on the ECBI-P.

In both fathers and mothers, there were no associations between parental changes in the PS-Laxness, PSOC-Efficacy, nor PSOC-Satisfaction subscales and changes in child behavior.

Discussion

Our main finding was that in both fathers and mothers a reduction in authoritarian, emotional and harsh parenting after behavioral parent training was associated with improvement of the child's disruptive behavior problems. This finding was in line with our hypothesis and with a previous study on mediators of a combined treatment for young children with conduct problems with the most favorable child behavior responses when mothers exhibited critical, harsh parenting before treatment which improved during treatment (Beauchaine et al., 2005). As expected, and in line with previous studies (Cunningham & Boyle, 2002; Harvey, Metcalfe, Herbert, & Fanton, 2011), before parent training we found both fathers and mothers in the clinical sample reporting more inadequate parenting skills and lower parenting sense of competence than parents of children in a nonclinical sample.

An overreactive parenting style can be seen as a form of parental coercion (Bor & Sanders, 2004), i.e., points to parental reinforcement of negative child behaviors and vice versa (Lorber et al., 2014). Parental coercive behavior may be one of the most crucial risk factors for future conduct problems (Bor & Sanders, 2004). Overreactive parenting models hostile behavior, and may undermine children's' self-regulation and willingness to comply (Lorber & Slep, 2015). High levels of disruptive child behavior problems in its turn may elicit harsh and uncontrolled parenting disciplining practices and such inadequate over-reactive parenting reinforces and elevates conduct problems (Lorber et al., 2014). Especially in young children with ADHD symptoms, reducing over-reactivity in parents is important, as over-reactivity has been shown to mediate the relation between early hyperactivity and later oppositional behaviors (Harvey et al., 2011). Thus, behavioral parent training appears to mitigate the risk factor of coercive parenting, especially in mothers, at least in the short run. In our study, mothers' overreactive parenting in the clinical sample decreased after behavioral parent training up to normal levels, i.e., equal to mothers of non-clinical children. This finding is even more important, as maternal over-reactivity is known to increase over time (Lorber & Slep, 2015).

Although mothers' laxness in disciplining also significantly improved after behavioral parent training, these changes were not found to be associated with changes in child behavior, maybe due to the strong predictive value of the over-reactivity factor. Interestingly, in contrast to parental over-reactivity, laxness was not found to be predictive for more symptoms of oppositional defiant disorder in 3-year old children, at the age of 6 (Harvey, Metcalfe, Herbert, & Fanton, 2011). Thus, reducing harsh and emotional maternal parenting strategies may be more important for the improvement of child behavior problems, than reduction of permissive disciplining.

Fathers reported no improvements in the use of parenting strategies and only a significant change in parenting sense of competence, albeit with a small effect size. A lack of effect of behavioral parent training on paternal parenting behaviors is in line with findings of a previous study in young children with ADHD (Webster-Stratton, Reid, & Beauchaine, 2011), but in contrast to another study on early-inset conduct problems (Webster-Stratton, Reid, & Hammond, 2004). In our study, treatment attendance did not explain the lack of effect in fathers, as fathers and mothers in our sample participated in an almost equal, and high amount of treatment sessions. However, all participating fathers were secondary caregivers, spending less time with their children than did mothers, and having fewer opportunities to practice new parenting skills. Possibly, limited readiness for change may have influenced

fathers' results as well. A recent study on readiness for change before starting parent training showed that fathers of young children stated less motivation to change their parenting, felt less capable to change, and regarded participating in treatment as less important than did mothers (Niec, Barnett, Gering, Triemstra, & Solomon, 2015). It may also be that fathers profit better from adapted formats of behavioral parent training, as was shown in a study on fathers of older children with ADHD (Fabiano et al., 2012). Although fathers' over-reactivity in our study did not change significantly after treatment, there was an association between changes in paternal overreactivity and changes in child behavior. Therefore, it may be important for therapists to focus in behavioral parent training with fathers on reducing their overreactivity.

Previous studies on parenting of parents of preschool children with conduct problems showed that changes in observed positive parenting strategies, but not in negative, were associated with change in children's behavior (Gardner, Hutchings, Bywater, & Whitaker, 2010). Positive parenting skills, such as environmental restructuring, modelling, planning ahead, and praising are considered to be preventive for the development of disruptive behavior problems (Cunningham & Boyle, 2002). In our study, we did not evaluate changes in positive parenting practices, but as our treatment protocol contains all these techniques and focuses on eliciting positive parent-child interactions one may assume that positive parenting increased after the behavioral parent training.

Regarding parenting sense of competence, both fathers and mothers showed significant improvements after behavioral parent training, but these were not associated with improvements in child behavior. Moreover, after the parent training parents still experienced a significantly lower parenting sense of competence than parents in the nonclinical sample. Although their child's behavior problems had decreased, the remaining problems apparently were still demanding for both parents.

At pretreatment, mothers in the clinical sample reported significantly higher levels of over-reactivity than fathers. On all the other parental parameters we found no significant differences between mothers and fathers in this group. In the non-clinical sample mothers and fathers did not differ on any of the parenting variables. As expected, parents of children in the clinical sample reported more overreactivity and lower levels of parenting sense of competence before treatment than parents of children in the nonclinical sample. Mothers in the clinical sample, but not fathers, reported more lax parenting at pretreatment than did mothers in the control sample.

Limitations

A strength of our study was the embedding within clinical practice and the use of both mother and father outcome ratings on parenting. However, notable limitations were the lack of a control group and the modest sample size. Because of the absence of a control group, we cannot attribute the changes in maternal parenting to the behavioral parent training, although mothers discipline practices after the treatment did not differ anymore from mothers in a nonclinical sample. The modest sample size, especially regarding fathers, may have affected study power and our negative findings regarding changes in parenting after behavioral parent training and regarding the predictors should be seen in this light.

Clinical implications

We showed that after behavioral parent training in a real-world setting, maternal parenting behaviors and parenting sense of competence had improved. Especially the reduction of harsh and emotional parenting in both parents was related to improvements in the child's behavior. Assessment and change of uncontrolled and harsh parenting practices in both parents should thus should be an important focus of any parent training program.

Although there was a high treatment attendance, fathers' parenting behaviors did not change after behavioral parent training. Assessment of readiness for change, and a pre-treatment motivational phase, may be needed to improve outcome on paternal parenting practices. Furthermore, when fathers are involved in parent training, therapists may focus more on decreasing paternal over-reactivity. Also adaptations of existing treatment protocols to the specific needs of fathers (e.g. (Fabiano, 2007) may be required.

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